



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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MEMORANDUM

TO: West Palm Beach Surface Water Management Division Staff

FROM: Damon Meiers, Deputy Director, Environmental Resource Regulation Dept. *DM*

DATE: October 18, 2004

SUBJECT: **Interim Guidance Regarding Best Available Information for the C-51 Basin Rule 40E-41 Part III, F.A.C.**

BACKGROUND

The C-51 Basin in Palm Beach County has additional regulatory criteria specific to the basin as described in Chapter 40E-41, Part III C-51 Basin, F.A.C. The additional criteria generally require compensating floodplain storage, specific peak discharge rates, minimum 100 year – 3 day storm event peak stages, and additional water quality treatment. These criteria are based on a basin study done in the 1980s that consisted of a hydrologic and hydraulic model of the basin as it existed at that time. The discharge coefficients and the peak flood stages for each sub-basin determined from this model were incorporated into Figures 41-8 and 41-9 of the C-51 Basin rule.

NEW BASIN STUDY

Upon completion and full operation of Stormwater Treatment Area 1 East (STA-1E), the C-51 Canal will be operated significantly different than it is currently. In anticipation of completion of STA-1E the District initiated a new study¹ to determine what changes in sub-basin discharge coefficients and peak flood stages would occur in the C-51 Basin. In addition, up to date information on basin characteristics such as topographic information and revised sub-basin boundaries were acquired. The study has been finalized and new sub-basin discharge coefficients and flood stages have been determined. The results indicate that discharge coefficients have increased and flood stages have decreased. During the study a peer group made up of interested stakeholders and consultants from the area was formed to review the study's progress. The peer group has expressed satisfaction with the basin study and its results.

RULEMAKING TO REVISE RULE 40E-41

Since STA-1E is scheduled for completion this year, staff has initiated rule development to amend the C-51 Basin specific criteria to be consistent with the full operation of the STA. The amendments include replacing Figures 41-8 and 41-9 with the new sub-basin discharge coefficients and peak flood stages and other updates to the basin specific criteria. However, the rule amendment will not become effective until STA-1E is fully operational, which requires that the quality of water at the discharge point be better than the quality of water at the inflow point. Based on experience with other stormwater treatment areas, achieving this condition could take up to a year. Because of this anticipated time lag, this memorandum has been prepared to provide guidance to staff in reviewing permit applications in the C-51 Basin during this interim period.

INTERIM GUIDANCE

To determine the existing peak flood stages in the C-51 Basin based on the updated basin characteristics, Palm Beach County contracted with the consultant that developed the model for the District to model the existing conditions. This model² included the existing operation of the C-51 Canal (without STA-1E in operation), the updated topographic information and the revised sub-basin boundaries. The results of this model have been reviewed by District staff and show that the peak flood stages for the existing conditions model are lower than the peak flood stages shown in Figure 41-9 of the existing basin rule.

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Rule 40E-41.243(2) states "The criteria in Florida Administrative Code Rule 40E-41.263, (Conditions for Issuance of Surface Water Management Permits in the C-51 Basin), shall apply unless the applicant can demonstrate through accepted scientific and technical methodology that the purpose and intent of this rule chapter is fulfilled by the use of alternate criteria." Rule 40E-41.263 includes the peak flood stages for the sub-basins of the C-51 Basin and references Figure 41-9. The peak flood stage results of the existing conditions model done by Palm Beach County qualifies as acceptable alternate criteria. Therefore, the peak flood stages from the existing conditions model done by Palm Beach County can be used in determining minimum finished building floor elevations and encroachment into the floodplain in lieu of the existing rule stages in Figure 41-9.

In sub-basin 35 (Glen Ridge/Cloud Lake area) the peak stage value from the existing conditions model is not being used. The existing conditions model assumed that this sub-basin was isolated from adjacent sub-basins, however, this is not the case. A plan to isolate this sub-basin is being developed, but no time frame for implementation has been established. A previous study³ of this sub-basin identified a peak flood stage of 13.0' NGVD that is more appropriate for the existing condition and will be used in this interim guidance.

The existing conditions model indicates a peak stage value of 12.3' in sub-basin 28 however the future condition model (with STA-1E in operation) indicates a peak stage value of 12.4' in sub-basin 28. This is believed to be the result of round off differences between the two models therefore the higher value of 12.4' for the future condition model will be used in this interim guidance.

The table below compares the existing rule sub-basin peak flood stages to the existing conditions model sub-basin peak flood stages. Also the attached Figure 1 shows the peak flood stages for the existing conditions model sub-basins. Please note that the sub-basin boundaries and identifying numbers for the existing rule Figure 41-9 and the updated existing conditions model sub-basins (Figure 1) are considerably different in some areas.

MODIFICATIONS TO EXISTING PERMITS

It is anticipated that permittees will request modifications to existing permits to reduce the size of previously permitted storage areas due to the lower flood stage elevations. However, the basin models incorporated topographic information that included storage areas in existence prior to January 2000. Therefore, any storage areas that were in existence (constructed) prior to January 1, 2000 must be treated as existing conditions providing storage to the basin that must be compensated in any future modifications. For example, if a phased project had the primary surface water management system constructed prior to January 2000 and the permittee would like to modify the permit to fill in portions of the storage area due to reduced flood stage elevations, the existing storage area would be considered the existing condition as if it were the pre-developed condition providing storage to the basin. Permit modifications for storage areas constructed after January 2000 can be reviewed using the original pre-development conditions. Documentation of storage area construction dates will be required. Acceptable documentation must reasonably identify the date that the storage area was substantially completed. Examples of acceptable documentation may include but are not limited to dated aerial photos, dated as built drawings, construction completion certifications or construction invoice documents that clearly demonstrate when the storage areas were constructed.

BIBLIOGRAPHY

¹ Reevaluation of the C-51 Basin Rule, Contract No. C-13412 (Technical Memorandum No. 3: Model Application); TBE Group, BP Consulting Group; November 2003

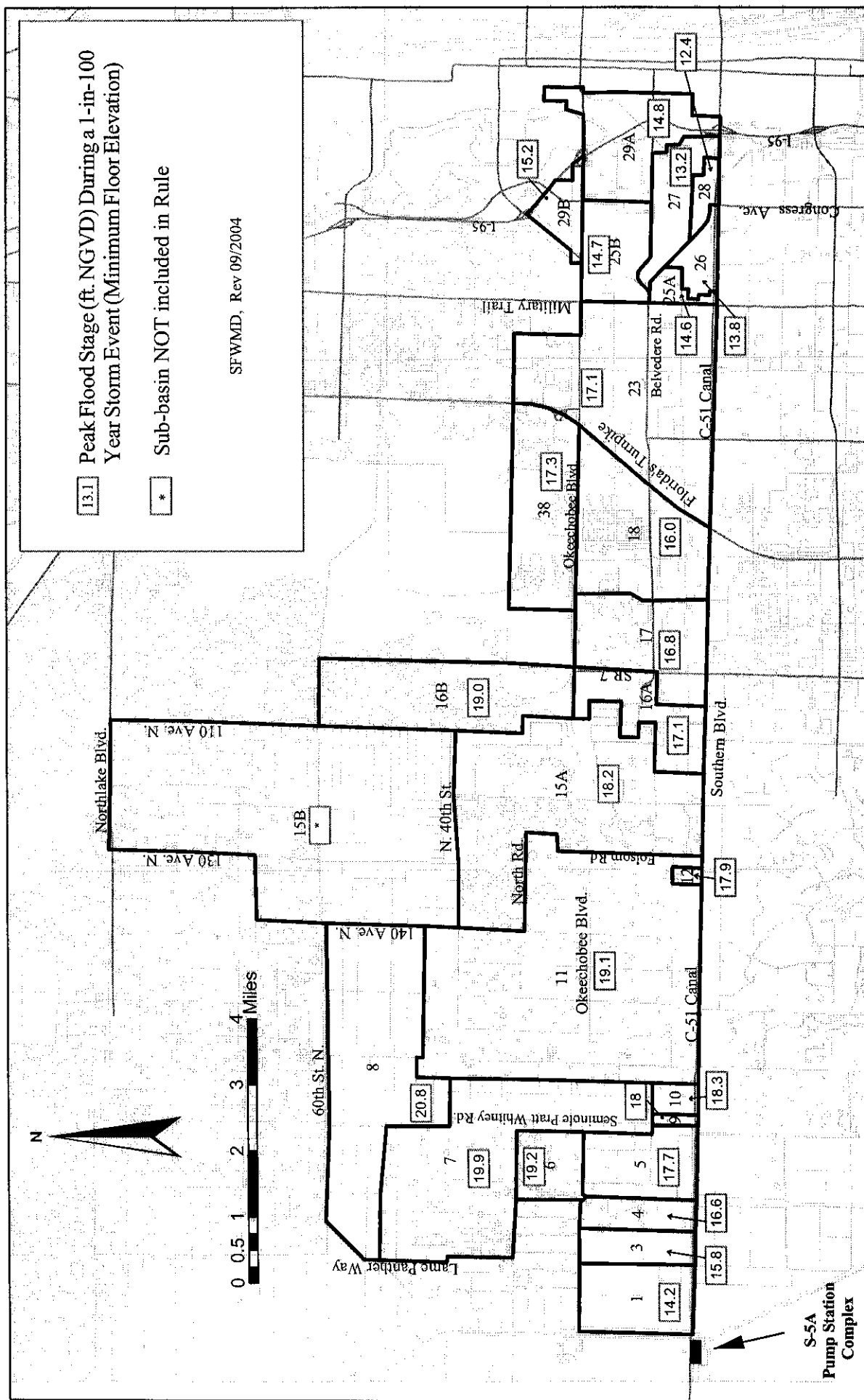
² C-51 Basin Model: Existing Conditions Persimmon BV East End Connection to Okeechobee BV, Project No. 1998500 Palm Beach County, Florida; BPC Group Inc.; June 2004

³ Glen Ridge/Cloud Lake Improvement Study; Adair and Brady, Inc.; July, 2003

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Comparison of Existing Rule and Existing Conditions Model Peak Flood Stages

Existing Rule Sub-Basins	Existing Conditions Model Sub-Basins	Existing Rule Peak Flood Stage	Existing Conditions Model Peak Flood Stage
1	1	18.2	14.2
2	2A	17.2	13.3
3		17.2	
5		17.2	
6		17.2	
7		17.4	
8		17.5	
5	2B	17.2	14.0
4	3	18.3	15.8
	4		16.6
9	5	18.7	17.7
10	6	21.0	19.2
	7		19.9
Callery-Judge Grove	8	22.0	20.8
10	9	21.0	18.0
11	10	20.1	18.3
12A	11	20.2	19.1
12B		21.0	
12C		21.0	
12A	12	20.2	17.9
13	13	17.5	16.7
14		17.5	
15	15A	19.0	18.2
NW SR7 & SR80	16A	18.1	17.1
17	16B	19.1	19.0
18	17	18.0	16.8
19	18	17.9	16.0
16	20A	18.1	16.5
		18.3	
20	20B	18.3	17.0
22		19.0	
21	21A	19.8	17.3
	21B		17.7
22	22	19.0	17.5
23	23	19.1	17.1
24	24	19.3	17.9
25	25A	16.6	14.6
	25B		14.7
	26		13.8
26	27	15.9	13.2
	28		12.4
30	29A	15.6	14.8
	29B		15.2
27B	30	16.4	14.1
27A	31	15.2	13.1
28	32	15.3	13.0
29	33	15.3	13.6
33	34	20.0	17.0
30	35	15.6	13.0
31	36	15.7	14.0
32	37	20.0	16.5
34	38	18.8	17.3



Existing Conditions Model Peak Flood Stage (ft. NGVD) During a 1-in-100 Year Storm Event

Figure 1

Plate 1 of 2

